

ABSTRACT OF THE DISCLOSURE

The present invention relates to mammalian Staufen, a double-stranded RNA-binding protein involved in mRNA transport and localization. The invention further relates to the demonstration of the association of a RNA-binding protein with the rough endoplasmic reticulum (RER), implicating Staufen and related proteins in the transport of RNA to its site of translation. Broadly, the invention therefore relates to transport and translation of RNA. More specifically, the present invention relates to human and mouse Staufen proteins and to the modulation of transport of RNA to the RER by these proteins. The present invention also relates to isolated nucleic acid molecules encoding mammalian Staufen, as well as vectors and host cells harboring same. In addition, the present invention relates to screening assays for identifying modulators of Staufen activity and to the identification of mutants thereof which abrogate their interaction with RER. Furthermore, the present invention relates to the use of the double-stranded RNA binding activity of Staufen as a means to target proteins into virions. The invention in addition relates to the incorporation of Staufen into RNA viruses and the use of overexpression or decrease expression of Staufen by RNA interference to significantly decrease the infectivity thereof. More particularly, the present invention relates to a novel and broad class of molecules which can be used as carriers to target molecules into virions of RNA viruses and to decrease infectivity of a wide variety of RNA viruses including retroviruses.